Scarlet or Northern Jezebel
(*Delias argenthona*)
on *Dendrophthoe vitellina* mistletoe

# Butterfly & Other Invertebrates Club Inc. Newsletter

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## Club Planning and Organizing Group - 2004

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## Planning and Organization Meetings

A quarterly meeting is scheduled in order to plan club activities and the newsletter. See BOIC Programme.

## Contact Address and Membership Details

PO Box 2113, Runcorn 4113, Queensland
Membership fees are $12.00 for Individuals/Oganisations and $17.00 for family membership.

## Aims of Organization

- To establish a network of people growing butterfly host plants;
- To hold information meetings about invertebrates;
- To organize excursions around the theme of invertebrates e.g. butterflies, fireflies, ants, dragonflies, beetles, freshwater habitats, and others;
- To promote the conservation of the invertebrate habitat;
- To promote the keeping of invertebrates as alternative pets;
- To promote research into invertebrates;
- To encourage the construction of invertebrate friendly habitats in urban areas.

## Newsletter Deadlines

If you want to submit an item for publication the following deadlines apply:
March issue – February 21st
June issue – May 21st
September issue – August 21st
December issue – November 21st

## Cover Drawing

Scarlet or Northern Jezebel (*Delias argenthona*) on *Dendrophthoe vitellina* mistletoe by Lois Hughes

## PRESIDENT'S POSTING

Our 10th birthday as a Club see us producing a bumper issue of this newsletter, our 35th issue, with the theme of mistletoes.

Congratulations and heartfelt thanks are in order to the many hands that make the work lighter, particularly the office bearers over the years, and the members of the planning committee (for the current crew please see the facing page). We've celebrated our birthday with a number of events reported elsewhere and there are still some ongoing activities that we hope to bring to fruition, in particular, a CD of all the back issues of the newsletter. We are looking for someone with the necessary skills to create the CD – please volunteer if you have these.

Over the last few months we have been liaising with some members of the Australian Native Bees email discussion group, and have invited the discussion group members to join our Club to help spread the word about native bees further. We welcome those who've already joined, we hope to publish more articles on native bees and to use this to produce information booklets and other resources.

Looking forward to the next 10 years and wishing everyone Season's Greetings.

***Helen Schwencke***

## IN THIS ISSUE

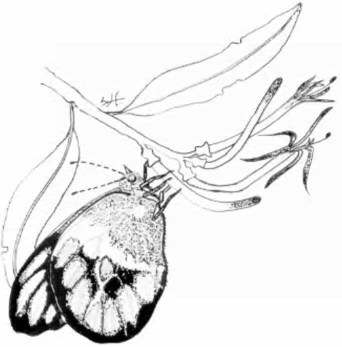
Creature Feature - Scarlet Jezebel (*Delias argenthona*) ....4
Plant Profile - Yellow Mistletoe (*Dendrophthoe vitellina*) ....5
Celebrating our 10th Birthday ....7
Excursion Reports - Frank and Helen's Garden Visit ....8
  Marine Invertebrates Exc. to Point Cartwright ....9
  Nudgee Beach Exc. and light trapping ....10
Reports - Creepy Crawlies on the Internet ....11
  Littoral Zone Invertebrates ....12
A Feast of Mistletoes - Mistletoes Revisited ....13
  Mistletoes and their insects ....15
  Mistletoe - Friend or Foe ....20
  I planted a mistletoe ....21
  The Mysterious Mistletoe ....23
  Scientific name change and the gender issue ....24
Aussie Bees in Your Garden ....26
Qld. Aquatic Macro Invertebrates ....28
Book Review - "The Complete Field Guide to Butterflies of Australia" ....33
Bug-eyed ....35
Volunteer Required ....37
You Asked ....37
Letters ....38

## SCARLET JEZEBEL(*Delias argenthona argenthona*)

Probably known to most of us as Northern Jezebel, this is another of the “mistletoe” butterflies.

Normally quite common in winter, this year it has been unusually low in numbers. I personally put this down to the dry conditions we have been having for so long now.

Without rain we are not getting the new growth on a lot of our butterfly larval foodplants and most butterflies refuse to lay their eggs on the older growth. Hopefully, rain is not that far away.



Scarlet or Northern Jezebel

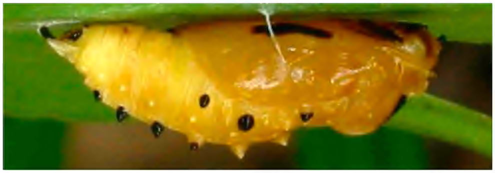
The butterfly has a wingspan of about 62mm. The upperside of the wings are mainly white with a darker edge enclosing white spots, the females are a bit lighter on the edge with a more yellowish tinge overall.

The underside of the fore wing is identical to the upperside, but the hind wing can almost be divided in half, one half being lemon yellow and the other half is dark brown with a large amount of crimson spots surrounded by white.

It is not usually a very fast flying butterfly, unless threatened, it is mostly observed flying around callistemons. This is for two reasons, firstly the larval foodplants, mistletoes, utilise callistemons, secondly, callistemon flowers are a favourite nectar source for the adult butterflies.

The eggs, mainly laid on the leaves or stems, are orange-yellow in colour and are laid in clusters of about thirty-five at a time.

The larvae are very variable in colour, ranging from yellowish-brown to greenish-pink with lots of different combinations in between. They have a row of white spots, from which white hairs extend.



Northern Jezebel pupa
Photo supplied by Bob Miller

The pupae, found suspended by tail and a central silken girdle in a head-up attitude, are orange-yellow in colour. They have a black projection on the head, with conical shaped spines on the body. The conical spines are the best way to distinguish between the pupae of this butterfly and the pupae of the Black Jezebel (*Delias nigrina*), the latter having pointed spines.

As with *Delias nigrina,* the pupae of this butterfly can be found attached to a stem of the foodplant, an adjacent piece of vegetation, or even on the ground at the base of the host tree.

The local mistletoe foodplants include: *Amyema bifurcata, A. cambagei, A. miquelli, A. pendula, Dendrophthoe vitellina* and *Diplatia furcata.*

The trees that host these mistletoes include: *Callistemons, Casuarinas, Eucalypts* and *Melaleucas* and most are available from the Barung Landcare Nursery in Maleny.

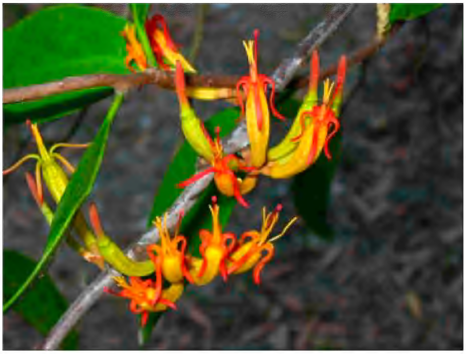
Further information can be obtained by reading *"Butterflies of Australia, their Identification, Biology and Distribution"* by Michael F. Braby, 2000.

***Bob Miller***

## PLANT PROFILE

### Yellow Mistletoe (*Dendrophthoe vitellina*) and Orange Mistletoe ( *D. glabrescens*)

These two mistletoes differ only subtly and may well turn out to be geographical variations of one species. The former has a coastal and subcoastal distribution in southeast Queensland whilst the latter occurs west of the Great Dividing Range including the drier habitat of the Brigalow Belt. It does, however, reach the coast in the region of Woodgate, near Bundaberg, where other western elements such as Bulloak are present.



*Dendrophthoe vitellina*
Photo supplied by Bob Miller

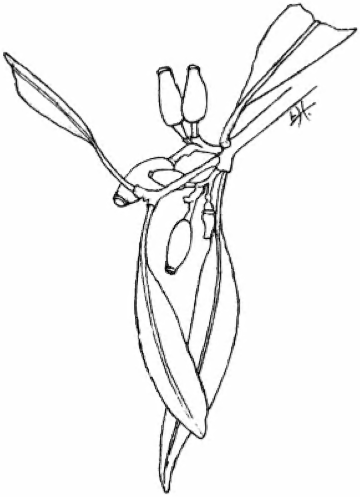
As can be seen in Lois Hughes' excellent illustrations these species have alternate elliptic leaves of 10-15 cm long and 2-4 cm wide. The 4-5 cm long tubular flowers vary from pale yellow to bright orange and are in clusters of up to a dozen specimens.

The relatively large red fruit (up to 2 ½ x 1 ½ cm) are relished by figbirds, pigeons, honeyeaters and of course mistletoe birds. They readily germinate and are easy to propagate on host trees. (See F. Jordan reference – Growing Mistletoes)

As well as the usual haustorial attachment, these mistletoes spread along the trunk and branches by epicortical runners and "plug in" at other sites to maximize growth and survival.

Both "species" have multiple hosts which include Callistemons, Acacias, Eucalypts, Angophoras, Grevilleas (especially Silky Oak), Melaleucas (mainly paperbark species), Brachychitons (especially Kurrajong) and occasionally Flindersias. Not all of these host trees have bark that one would confidently expect the germinating mistletoe to be easily able to penetrate for attachment, but in nature's way it happens and often.

These mistletoes host a variety of insects and as stated above are food for birds as well as possums, gliders and ironically koalas! (see A synopsis of lecture "Mistletoes and their insects" by Murdoch De Baar appearing in this issue). I will list only the butterfly component here, but Murdoch De Baar's several articles include moths and other insects.



*Dendrophthoe vitellina*
showing developing seed

This listing of Azure, Jezebel and other butterflies is taken from the tables for both mistletoe species in the B.O.I.C. "green hostplant" book, where another 20 mistletoes and their butterfly denizens are listed.

*Delias argenthona* – Scarlet or "Northern" Jezebel
*D. nigrina* – Black or "Common" Jezebel
*Ogyris abrota* – Dark Purple Azure
*O. aenone* – Sapphire or "Cooktown" Azure
*O. ianthis* – Golden or "Sydney" Azure
*O. genoveva* and *O. zosine* – Purple Azures
*Hypochrysops digglesii* – Silky or "Diggles" Jewel
*Candalides margarita* – Trident Pencilled-blue
*Erysichton palmyra* – Marbled Line-blue

***John T. Moss***

# CELEBRATING OUR 10TH BIRTHDAY

## Pine Rivers Shire - Outdoor and Alive Festival

Our 10th anniversary celebrations took the form of two separate functions. The first involved holding a stall at the Outdoor and Alive Festival on Sunday 31st October, 2004. We were joined by some members of the ANBees group with a native social bee display. For our display we borrowed a wide range of materials from the Queensland Museum and were also lent a pair of Giant Burrowing Cockroaches and two species of Stick Insects. We were also fortunate to have six different species of caterpillars on show. Thanks goes to Daphne Bowden for her help in setting up this stall.

A special feature of this celebration was Ross Kendall's kind donation of Large Grass-Yellow butterflies for a public butterfly release. This was done from the public stage and drew significant attention. The butterflies were excellent for the task, as they are very bright and, once released, they flew low and in amongst the crowd. Several children were seen trying to catch them. Thanks goes to Ross for this great contribution.

## Nudgee Beach Party

Between the excursion held in the afternoon on the 20th November, and the light-trapping after dark, we celebrated our birthday with a BBQ and party under the Nudgee Beach Environment Education Centre. The Principal, Mary-Ann Pattison, kindly agreed to allow us to use the facilities under the centre in case of bad weather.

The special features of the party included an excellent "Happy Birthday" Bagpipe serenade by Cory Dale, who has recently been to Scotland playing in the Tattoo. Also a special birthday butterfly cake was made by a Club member's daughter, Sarah.

Our 10th Birthday Cake

We were joined at this event by two visitors from the U.K. who very kindly sent us the photo included here.

Particular thanks goes to both Cory and Sarah for making the party a memorable occasion. Thanks goes to all those who came along to our events and helped us celebrate.

***Helen Schwencke***

## Frank & Helen's Garden Visit

On a cold and windy morning on 20th June around 20 intrepid Club members faced the chill to come and visit our garden. This visit was, perhaps symbolically in our 10th year of the Club and with hindsight, a bit of a coming home. In 1992 Frank and I wrote and published "Butterfly Magic: Bring Back the Birdwing and Other Butterflies to our Backyards". Writing this booklet was largely the product of what we'd been learning, since 1987, by planting host plants on a small inner city suburban block of 405 sq m that was miles (kilometres) from any substantial natural vegetation. The interest generated by this booklet, and subsequently eighteen months of testing the water for interest, led us call the first public meeting to set up the Club in October 1994. The rest you might say is now history.

In the intervening years our block, largely under the ministrations of Frank, has become more of an experiment than a garden. It has been a successful experiment, with 42 different species of butterflies having been recorded as visiting our garden, laying eggs and completing their lifecycles on the plants on our patch of dirt. This has been a great experiment in increasing invertebrate biodiversity in an urban setting. While we have managed to raise only the caterpillars of those species that are purely host plant dependent, Frank has devoted many hours of effort in trying to introduce various species of ants for those butterflies that have a dependency on ants.

With the passing of time many plants have come and gone in our garden. While the bulk of the plants that are grown are natives, our garden also includes some non-natives, particularly sub-tropical exotic fruit and other trees.

The species we have raised on our block include those listed below. We have also raised the Joseph's Coat Moth and are looking into other day-flying moths. As all the butterflies are reasonably common and so that this doesn't become a catalogue, only the common names are give here. Anyone interested in obtaining the list of the butterflies and their host plants in our garden is welcome to write to the Club, or email: hschwenc@dovenetq.net.au

The butterflies that have been raised from our garden include:

- Swallowtails: Orchard, Fuscous (Capaneus), Dainty (Dingy), Blue Triangle, Pale Triangle, Chequered, Clearwing (Big Greasy), and possibly the Four-barred Swordtail.

- Nymphalids: Tailed Emperor, Varied Eggfly, Australian Painted Lady, Leafwing, Yellow Admiral, Monarch, Lesser Wanderer, Blue Tiger, Swamp Tiger, Meadow Argus, Jezebel Nymph, Common Crow, Glasswing, Evening Brown.

- Whites and yellows: Large Grass-yellow, Small Grass-yellow, No-brand Grass-yellow, Yellow Migrant, White Migrant (Common Migrant), Lemon Migrant, Caper Gull, Caper White, Yellow Albatross, Chalk White.

- Blues: Indigo Flash, Speckled Line-blue, Common Grass-blue, Tiny Grass-blue, Common Pencilled Line-blue, Plumbago Blue, Cornelian, Small Green-banded Blue. It is likely that a number of other blues have also bred in the garden.

- Skippers: Green Grass-dart (Yellow-banded Dart), Orange Palm dart, Splendid Ochre (Symomus skipper).

***Helen Schwencke***

## Marine Invertebrates Excursion to Point Cartwright

On Sunday 26th September, 2004 twenty-two club members, their families and friends attended our excursion to Point Cartwright. This was a great roll up. We set out for the rocky platform in the hope that the very low Spring tide would reveal a wider variety of marine invertebrates than can usually be seen at this site. The success of the excursion was greatly enhanced through the assistance of Christine Clegg, an independent marine scientist, who very ably interpreted for us.

While the forces of nature stymied the low tide, we nevertheless had a wonderful time exploring the rock pools for the wonderful variety of creatures that were revealed. Various species of the animal groups that had been introduced to those who'd attended the Peter Davie presentation were able to be seen. Also Peter's book "Wild Guide to Moreton Bay" proved very useful for identifying some of the animals.

Christine's very interesting contributions were largely of an ecological nature, helping us to understand each creature's role, adaptations and their relationships to the other creatures in the environment. Getting a close look at the many and varied animals and algae, some with truly spectacular colours and patterns, and looking at how some of the very long lived colonies, perhaps centuries old, vied with each other over very limited, highly utilised space was just fascinating, especially with Christine's ability to explain what was going on.

Of the many things we saw and found out about, it was interesting to note the origin of the Cat's eyes that are often found washed up on beaches. It turns out that these are the operculum of the Imperial Turban (*Turbo imperialis*), a marine snail. The operculum on a snail is attached to the foot and is used to close the entrance to the snail's shell when the animal is disturbed.

Our special thanks goes to Christine Clegg for her help with this excursion, and we wish her every success in her chosen field.

***Helen Schwencke***

## Nudgee Beach Excursion and light trapping

We continued our 10th birthday celebrations with an event on Saturday, 20th November 2004 at Nudgee Beach. Cloudy weather and predictions of bad storms appears to have diminished the number of expected revellers, though a good time was had by those who came.

The walk along the Mangrove Boardwalk was, after several previous attempts on my part, finally productive of a mangrove butterfly's larvae, the Copper Jewel (*Hypochrysops apelles*). After inspecting many a chewed leaf during the walk, I finally found two that seemed to be inordinately interesting to the ants that were present. On closer inspection, and that meant very close inspection, I finally saw what attracted the ants. Both half grown larvae were sitting along the tracks they make as they chew the underside of the leaves. Down the middle of their backs is a very dark brown line that matches almost precisely the colour of the chew pattern. The green edges of the caterpillars are almost exactly the same yellow-green of the leaves. Only the activity of the ants gave them away. Unfortunately, with no-one present who could be unequivocal about the species of mangrove these larvae were on, I can only narrow it to either the Yellow (*Ceriops tagal*) or young Spotted (*Rhizophora stylosa*) Mangroves. The extensive root development characteristic of Spotted Mangroves was not observed to be present. This butterfly is recorded as using both these species as their host plants.

Given the cloudy conditions very few other invertebrates were on the wing. Some Scarlet Jezebels (*Delias argenthona*) were seen flying near their mistletoe host plants (*Amyema cambagei*), though no larvae or pupae were found. One Samphire Blue (*Theclinesthes sulpitius*) was seen by an excursion goer flying around its host plant (*Sarcocornia quinqueflora*). Swamp Tiger (*Danaus affinis*) eggs were found on their host plant, *Cynanchum carnosum.* Several Monarchs (*Danaus plexippus*) were seen on the wing.

The bird watchers present enjoyed the pleasures that combining these two interests can bring and helped enhance our interest in birding.

Both John Moss and Cory Dale are thanked for making their light-trapping equipment available. This allowed us to set up both a vertical and an horizontal trap. Each brought in a different range of insects. Outstanding amongst those we attracted were the owl flies. Along with these we attracted a wide range of moths, lacewings, including many mantid lacewings, and tiny fig wasps. Several species that were attracted are yet to be identified.

***Helen Schwencke***

## REPORTS

### Creepy Crawlies on the Internet

Our speaker on Thursday, 22nd July 2004 was Peter Chew. Peter was invited to come and talk to us because of the excellent website of Brisbane's invertebrates that he has been developing, see: http://www.geocities.com/pchew_brisbane/

Many of Peter's photos are taken on his regular visits to his local park, Yugurapul, at Sunnybank. This park has also been the site of one of our Club's projects to reintroduce the Varied Sword-grass Brown (*Tisiphone abeona* spp. *morrisi*).

The Coastal Petaltail dragonfly (*Petalura litorea*), Australia's largest dragonfly, only recently identified as being present in this park by John Moss, was photographed by Peter Chew for the Dragonfly Society. This is an important find as its only known other habitat was Stradbroke Island.

Peter finds many subjects for his photography and so updates his site regularly. After taking photographs he uses a variety of books at his disposal to identify his subjects. Many people with expertise in the various groups of insects regularly visit his site and help him out with identification where necessary.

Peter demonstrated his website to the assembled group, and it was great to hear the stories behind the various photographs uploaded on his site. Of outstanding interest were his photos of one of the largest mealy bugs in Australia. These truly spectacular creatures are known as Bird of Paradise Flies. The species Peter photographed is the Violet Phoenix (*Callipappus* sp.). Another special find and photo of Peter's is that of the Mountain Katydid (*Acripeza reticulata*). This Katydid is more commonly associated with higher elevations, but Peter found and photographed it near Yugarapul Park.

Peter's website has proven useful in a recent request from the Western Australian Museum. Terry Houston was trying to find out about a new mole cricket being found in Perth. There was a question as to whether this species had come from the east coast of Australia via plant exports. Peter's work on mole cricket burrows and how to locate the crickets that he had published on his website, made it possible for Frank Jordan to collect the two local species in our suburban backyard and send them to the Western Australian Museum.

For those without an Internet connection, or who would like a copy of the site, Peter has published his website on a CD. This is available for sale from himself by sending a cheque for $40 to:
Peter Chew
3, Byzance Close,
Eight Mile Plains, Qld 4113
or otherwise contacting him on:
Phone : 3841 4098, email : pchew_brisbane@yahoo.com.au

or by sending a cheque for $40 payable to the Butterfly & Other Invertebrates Club to:
PO Box 2113, Runcorn, QLD 4113

Thanks goes to Peter for his engaging presentation

***Helen Schwencke***

## Littoral Zone Invertebrates

Presented by Peter Davie, Senior Curator (Crustacea), Queensland Centre for Biodiversity, Queensland Museum

Peter is the main author of the excellent Queensland Museum publication "Wild Guide to Moreton Bay: wildlife and habitats of a beautiful Australian coast – Noosa to the Tweed." His presentation to our Club on Thursday, 26th August, 2004 was based largely on slides from this publication and a segment of a "World Around Us" TV program from some years ago that was hosted by Frank Warrick and that Peter had a large input into developing.

The evening was spent orienting us to the range of habitats and the animals we might be able to see on the excursion to rock platform at Point Cartwright that was planned for the Spring low tide in September. These animal groups included sponges; soft corals; anemones; zoanthids; hard corals; flat, ribbon, bristle (including tube) worms; molluscs including octopi, chitons, snails, clams & oysters and sea slugs; crustaceans including crabs and barnacles; echinoderms including starfish, urchins, sea cucumbers; and sea squirts.

On behalf of the Club I thank Peter for his presentation.

***Helen Schwencke***

# A FEAST OF MISTLETOE

## Mistletoes Revisited

This is an appropriate time for botanists, entomologists and plant/insect students to take stock of a group of plants that have been as much castigated as loved. The world seems to be heading for environmental catastrophe with excessive tree clearing/land degradation and air/water pollution with the result of global warming. It is important that we take stock now and preserve our dwindling natural assets, and this should include the much maligned mistletoe.

Much has been written about mistletoes, their impact on the environment, whether ‘friend or foe’, as well as the animals, birds and insects that depend on them for food, shelter and ultimately survival. Over the past few years I have often been asked to give illustrated talks on this subject to schools, clubs and societies but alas not as yet farmers’ groups and politicians!

When I was young, mistletoes were considered to be pests, to be removed wherever and whenever possible. When I discovered, as a ten or twelve year old in Sydney’s bushland, my first silken web colony of the larvae and pupae of the majestic Imperial Jezebel (*Delias harpalyce*), I was enthralled and then determined that I would conserve and promote mistletoes as best I could. Since that time I have met several like-minded individuals such as Grace Lithgow, Gillian Scott, Murdoch De Baar, Bob Miller, Paul Downey and Glenn Leiper (to mention but a few) who have come to the same conclusion.

Over the years many articles focusing on mistletoes as hosts for birds, butterflies, moths and beetles have been written. Some of the more memorable ones I have listed below as references.

As well, there is now a focus on mistletoes as fascinating flora in their own right, instance the mistletoe forum “Spotlight on Mistletoes” in Victoria in 1996, as recorded in “Mistletoes in the Australian Landscape”, special edition of the Victorian Naturalist vol. 114 Part 3, June 1997. I have to confess that I have become addicted to the pursuit of as many interesting mistletoe/hostplant associations as I am able to find. This led me to write an article in 1998 for the Queensland Naturalist, on mistletoes of the Barakula Forest, Miles and Chinchilla district, describing their various hosts and interactions. Recently Glenn Leiper has asked me to contribute mistletoe information for his new book being prepared as a follow up to the superb Mangroves to Mountains. This will contain information and full colour illustrations of foliage, flowers and fruit of all the mistletoes occurring in Southeast Queensland, from Fraser Island to the N.S.W. border along the coast and westward from about Monto, through Toowoomba, along the Great Dividing Range down to the border.

Currently, Paul Downey is (as I write) tracking down the last few North Queensland and Kimberley region (W.A.) mistletoes for his forthcoming book on all the Australian mistletoe flora, due to be published early next year. He has recently described a new species of *Muellerina* (ref.) which is specifically hosted by Hoop Pine and so far found only in the small area between Canungra and Killarney in Southeast Queensland

Gillian Scott, an active member of the Toowoomba Field Naturalists' Club, has produced a portfolio of magnificent watercolour paintings of 44 of the approximately 88 Australian mistletoe species, many with their associated butterflies. She recently discovered the new Hoop Pine mistletoe referred to above. Gillian has also written an excellent booklet (ref.) which is a guide to the mistletoes of northern NSW and southeast Queensland and keys out and briefly describes the species of that region with helpful line drawings.

Grace Lithgow, who has an article appearing in this issue, is soon to produce a publication on local mistletoes in the tradition of her excellent book "60 Wattles of the Chinchilla and Murilla Shires". Her pencil and pen sketches show minute details of the plants that even digital photography can't reproduce.

Murdoch De Baar, as a senior technician with Queensland's Forestry Department is in a unique position to promote commonsense conservation with respect to our mistletoes. He has been a prolific writer of mistletoe articles for this club, the Entomological Society of Queensland, Qld. Naturalists Club etc., and has delivered many an illustrated address to these and other clubs and societies throughout Queensland. He has had full colour feature articles appear in national publications such as GEO Australia (see Refs.) and we will be reproducing the text of an earlier talk he did for the B.O.I.C. in 1995 in this issue.

Frank Jordan needs no introduction to B.O.I.C. members. His prolific writing on all butterfly/hostplant subjects is notable including many on the subject of mistletoes as hostplants for butterflies. A couple of his more detailed articles are referenced below and in particular his article on "Growing Mistletoes" is very well written, with commonsense practical tips for potential "growers"!

Our club's popular green-covered hostplant booklet contains a comprehensive listing of mistletoes and associated butterflies. This is due to be revised and possibly enlarged next year (when Daphne and I get a breather from all the other regular and irregular demands on our time!). In regard to those who have said that they would like plant illustrations, several options come to mind and our readership feedback in relation to these would be welcome.

One possibility is to cross-reference the plants with line-drawings and colour illustrations in publications such as "Mangroves to Mountains", "Wild Plants of Greater Brisbane", "Field Guide to the Native Plants of Sydney" etc., the assumption being that our readers will have one or more of these books. Many of the plants have had feature articles done on them in previous B.O.I.C. newsletters – these could be indexed. Another option is for several of us to pool our large collection of 35 mm slides and computer based digital images of the hostplants and use these in a greatly expanded "green booklet" published as a full colour illustrated book. Determining factors would of course include expected demand and access to upfront funding. A third option is to produce a CD-ROM (with or without the booklet) as per Garry Sankowsky's excellent "A Garden on the Wing". But I digress from mistletoes.

The following list is only representative – there are no doubt articles and indeed books that I have neglected to mention. Happy reading

***John T. Moss***

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## **A synopsis of lecture "Mistletoes and their insects"** to the Butterfly and Other Invertebrates Club : 27 July 1995 By Murdoch De Baar

Epiparasites or mistletoes in Australia (sensu lato) are those plants which belong to the families Loranthaceae and Viscaceae. *Amyema* is the largest genus in the Loranthaceae while Viscaceae includes *Notothixos*, *Viscum,* and *Korthalsella.*

***There are 87 species of Australian mistletoe mainly in the Loranthaceae which includes 950 species worldwide (14 of that 87 are in Viscaceae making a combined total of 1350 species).***

Mistletoes are semi-parasitic plants which undertake photosynthesis to produce organic matter, but which derive water and mineral nutrients from their host. Some of the Viscaceae also obtain photosynthetic products from their host.

The related family Santalaceae contains root parasites such as Native Cherry (*Exocarpus* spp.), Sandalwood (*Santalum* spp.), Sourbush (*Choretrum* spp.) but two root parasites (*Nuytsia* and *Atkinsonia*) are represented in the Loranthaceae.

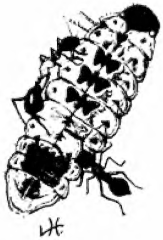
There are about 25 species of butterflies which feed on mistletoes during the larval or caterpillar stage.

*Ogyris zosine*

The genus *Delias* often known as "Jezabels" or "Union Jacks" are obligatory feeders of mistletoes and are represented by 150 species (about 400 species-group taxa) in the Indo – Australian region, 80 species in Papua New Guinea, 8 species (14 taxa) in Australia.

The *Delias* occur mainly in and around PNG with fewer species represented at the extremities – India, China, Philippines, Taiwan and at the other extreme – Solomon Islands, New Caledonia and New Hebrides.

Small to medium-sized butterflies commonly called "azures", include 12 Australian species in the basically Australian genus *Ogyris*. Ten of these are obligatory mistletoe feeders and many also require the presence of specific ants. In these cases, butterflies and ants have co-evolved in the presence of mistletoes, so providing a variety of compounds (amino acids) secreted from glands on the larvae to the ants, and in return the ants provide protection to the larvae.



*Ogyris zosine* larva with attendant ants

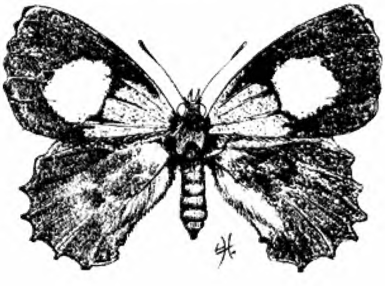
Some azure larvae prefer to hide under bark pieces or in borer holes. The Sydney Azure requires *Froggatella* *kirbyi* ants and shows a preference for handy borer holes.

Other butterflies, moths, beetles and so on, also feed on mistletoe. The larvae of a few longicorn beetles, jewel beetles, pinhole borers, moths are known to bore into mistletoe stems.

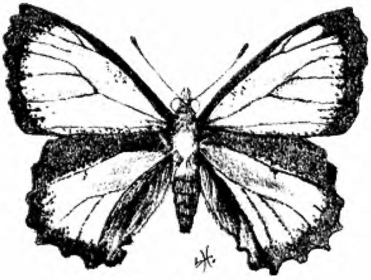
Fluffy gliders supplement their diet with clumps of mistletoe flowers which can be rich in nectar, and possums also feed on the fruit and flowers.

Mistletoe is mainly spread by the Mistletoe bird. This bird and many others including silvereyes, orioles, honeyeaters, wattlebirds and some parrots eat mistletoe fruit or feed from the flowers.

In southern Queensland at least 30 species of butterflies and moths feed on mistletoe, of which about half are moths including two large Emperor moths (*Opodiphthera loranthi* and *O. engaea*), the Mistletoe Day-flying Moth (*Comocrus behri*), the Mistletoe Stemborer (*Xylorycta heliomacula*) and the Mistletoe Browntail Moth (*Euproctis edwardsi*) which has caused rash problems in the Sydney area. This last moth has hairy caterpillars.



*Ogyris abrota* – female



*Ogyris abrota* - male

Most mistletoes are host specific on one or two genera of plants. Some specialize on other mistletoes, such as the Golden Mistletoe (*Notothixos subaureus*).

* One might propose the finding of a mistletoe on a mistletoe on another mistletoe on a santalaceae root parasite on a host.

Consider the following: the mistletoe *Viscum articulatum* is a Loranthaceous and *Notothixos* parasite, but the mistletoe *Notothixos subaureus* is also a Loranthaceous parasite on such genera as *Amyema, Dendrophthoe* and *Muellerina*; however *Amyema miraculosum* may parasitise the root parasite *Santalum lanceolatum* or even another *Amyema*! *

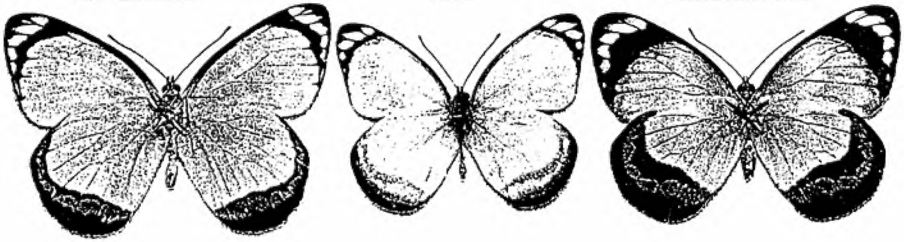
* Consider the following: If mistletoes are killing our trees; if there are no introduced mistletoes in Australia; therefore why haven't our trees been destroyed before Captain Cook arrived here? *

The statement by F. Bodkin in Encyclopaedia Botanica, p. 1019 – that *Viscum album*, a native of Europe, is in Australia – is considered incorrect by the Queensland Herbarium, Indooroopilly, Brisbane, and is considered to be a misidentification of a native *Viscum* (G.P. Guymer, pers. comm.).

Tree failure is seldom due to one single natural factor, rather the cause is often attributed to a combination of several factors. Control of mistletoes should be carefully considered and researched and not based on old unchallenged statements re-published from book to book.

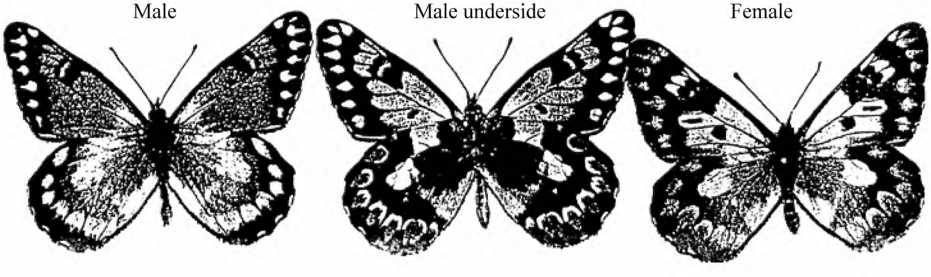
Mistletoes can occasionally kill trees, but they are a part of the environment and support other species and intricate life cycles. They add to biodiversity. They are in balance with the rest of the environment. If one argues that mistletoes stress trees; therefore they must be controlled: Then we should control Koalas also?

*Delias mysis*



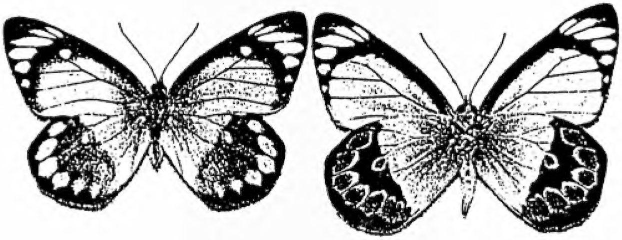
Male underside Male Female underside

*Delias aganippe*



Male Male underside Female

*Delias argenthona*



# MISTLETOE NOTES by M. De Baar

Questions often asked:  Why do we need mistletoe, we should be destroying them?

Response:

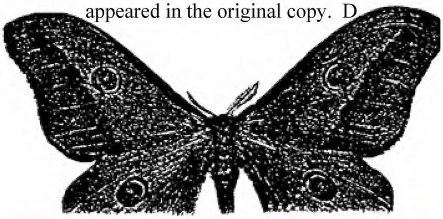
Mistletoes ……..

- add to biodiversity – biodiversity is an indicator of a complex ecosystem
- support intricate interdependent life cycles
- are wholly native
- are represented by a range of species, 87 in Australia including hyperparasites and many rarer species
- often do not kill their host and can die long before its host
- are most likely to be one of a series of factors involved in its host death
- are often not represented by claimed tree death numbers, in high mistletoe density areas
- provide diet supplements to many birds, gliders etc.

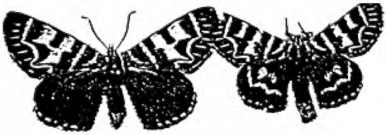
Further viewpoints:

1. Large scale mistletoe control can do more damage to mistletoe control agents in the long term.
2. Mistletoes do occasionally kill trees.
3. If mistletoes need to be controlled because they stress trees, then we must control the koalas also.
4. If mistletoe controls are necessary, maybe a partial control strategy should be considered.
5. Control of mistletoe should never be based on outdated or generalized information, but strategies should be carefully considered and researched.

Sorry, this was the way it appeared in the original copy.  D



The Mistletoe Emperor Moth (*Opodiphthera loranthi*) family Saturniidae; *Comocrus behri* – family Agaristidae – female & male



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# Mistletoe – Friend or Foe?

***By Denver Kanowski***

(Reprinted, with permission, from "Urimbirra" the Journal of the Chinchilla Field Naturalists' Club Volume 35 Number 7 July 2001)

Many people on the land are concerned with the increase in mistletoe in remnant trees. Mistletoe is a natural component of our forests and the imbalance created by broad acre farming can easily be identified with its proliferation.

There are 86 identified species of mistletoe in Australia. Some of these have ancestors dating back 60 million years, to the time of Gondwanaland. Most are host specific – meaning they parasitise only one or a few of the available trees and shrubs in their environment. Instead of a root, they produce a woody organ, called a haustorium which penetrates the stems of trees and shrubs, thus attaching the mistletoe to the host plant. It then absorbs water, mineral nutrients and organic compounds from the host's sapwood.

Mistletoe is an important food plant for many Australian native animals and birds. The Mistletoe Bird (*Dicaeum hirundinaceum*) is the main seed disperser and lives almost exclusively on mistletoe.

Parrots, such as Rosella, consume large quantities of mistletoe. Their digestive system, however, dissolves the seed embryo, thereby parrots help control mistletoe.

Possums and gliders also eat mistletoe – for them the leaves are the preferred part. Where possums are abundant, mistletoe is rarely a problem.

In New Zealand where Brushtail Possums (*Trichosurus vulpecula*) are introduced, all 5 remaining NZ mistletoes are endangered.

Mistletoes are fire sensitive – as modern day farming has largely excluded fires from the environment, this may also favour their spread.

Mistletoe can be controlled in individual trees by pruning and pollarding. Pollarding is complete removal of the canopy – leaving bare trunks to regrow.

**Longer Term Strategies**

1. Plan farms and catchments to include an environment where possums, parrots and predatory insects can prosper.
2. Manage natural regeneration
3. Collect seed from mistletoe resistant specimens for re-vegetation

**Acknowledgement** – Dr. Nick Reid (University of New England, Armidale) has done considerable research into mistletoe and has printed an excellent booklet "Managing Mistletoe"
**I PLANTED A MISTLETOE** by Grace Lithgow (Reprinted, with permission, from Urimbirra, Volume 36 Number 4 – The Journal of the Chinchilla Field Naturalists' Club.)

It was a Harlequin Mistletoe (*Lysiana exocarpi* subsp. *tenuis)*. This mistletoe usually flowers in February/March and the fruit is ripe several months later but there is often some spot flowering during the year, so a search can usually enable the finding of a ripe fruit. In March 1999 a good flowering of the Harlequin Mistletoe on some Bulloaks (*Allocasurina luehmannii*) at Columboola attracted attention so after a search I brought home a ripe fruit.

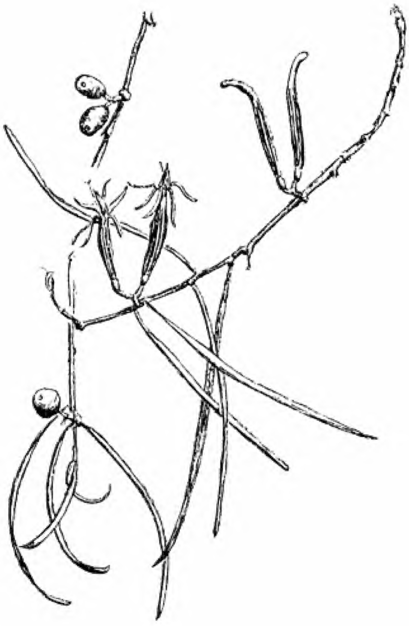
To record the growing of a mistletoe plant from seed I did several drawings of the early stages. On the 7th March I put the sticky seed on a young twig of a Belah (*Casuarina cristata)* tree near the house at "Allinga". Within one week there was a green shoot out of the seed case. This shoot had a roundish sticky knob on its end.

By late April, this sticky knob was attached to a "needle" and starting to grow around it. Within three months – June - the new plant was withdrawing its three seed leaves from the seed case.
In early July the leaves were spread out and the seed case had gone.
On the 1st of August the mistletoe had six leaves.
By the 2nd October there were twelve leaves and the size of the "needle" was shrinking.
By the 19th January, 2000, there were three branches and the haustorium (the attachment to the tree) was well developed.
7th March, 2000 – twelve months of growing – there were three branches – one 14 cm long the two 15 cm in length with the haustorium 1 cm across.
This is when I gave up drawing as the plant was now too large to fit on the page.
During October/November 2000 two branches were blown off in storms but by January 2001 there were small shoots at the base of the remaining branch.
On 7th February 2001, there were flowers on the oldest branch. One pair was open. The tubes were pale orange with the tips or petals green. They developed one fruit which I removed.

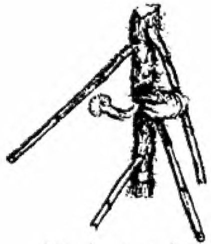
Today at the end of February 2002, there are six branches mature enough to have flowers. I gave up counting them are getting to 150. Four branches are 40cm to 60 cm long. The haustorium has grown to 3 cm across and a couple of centimetres thick. Large enough to have grown onto the branch – see drawing 19th January 2000.

There is a groove where it was attached originally to the "needle". There are no bits of the "needle" visible. The orange and green buds and flowers are quite beautiful but I'll be busy removing so many fruit. We don't want the mistletoe spreading.

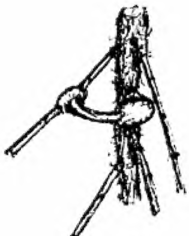
Later I did plant a second seed but when it was at the stage of withdrawing its leaves from the seed case, a wind caused the leaves to be ripped off. They were still in the seed case. Two months later the little haustorium produced some leaves. This plant never grew well or quickly. Some months later, after some heavy winds, it was gone.



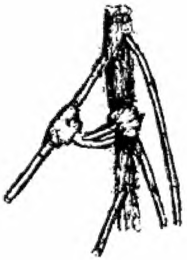
*Lysiana exocarpi* subsp. *tenuis*
Seed put on Belah 7/3/99



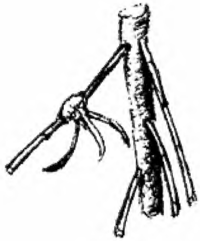
March – 1 week since seed collected



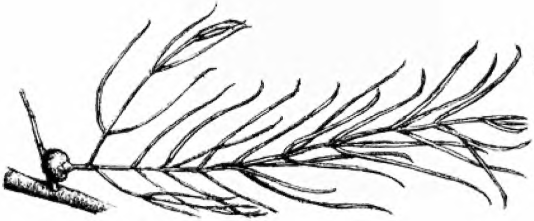
Late April



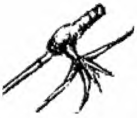
Early June (3 months)



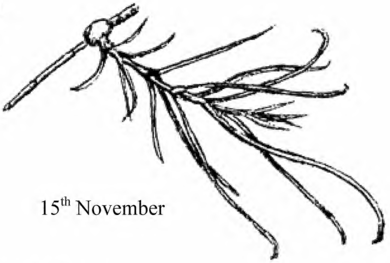
Early July



19th January 2000



1st August



15th November

Sketches by Grace Lithgow

**The Mysterious Mistletoe** – Reprinted, with permission, from the Bush Telegraph Winter 2004 (Qld. Parks and Wildlife Service)

Visiting my local shopping centre recently, I heard the loud shrieks of lorikeets. Closer inspection revealed the reason for all the excitement, for amongst these feathered jewels was none other than a native mistletoe plant. No wonder they were so excited – mistletoe flowers are laden with nectar and prized amongst native wildlife as a rich source of sugar and carbohydrates.

In fact, among native wildlife this plant is a popular source of food, particularly in winter months when flowering plants are scarce. Brushtail possums feed on both the leaves and the fruit, while the larvae of about 30 different butterfly and moth species eat the leaves and flowers of this cryptic.

Why cryptic? Many people remain blissfully unaware they have a mistletoe growing in their backyard. These semi-parasitic plants mimic the form of their host plant blending well with the native foliage. There are more than 80 species of native mistletoe and they mimic plants as diverse as eucalypts, mangroves and rainforest species.

If you do have mistletoe in your backyard then you will quite likely have a rather special visitor to your garden, the mistletoe bird. With a brilliant splash of red on their chests, these stunning little birds are responsible for spreading the seeds of mistletoe. Once eaten, the seed of the fruit passes quickly through the bird, emerging just 10 to 15 minutes later. The sticky seed fastens onto a branch to become the next generation of fast-food in the forest.

Over the years mistletoe has had a reputation for causing tree decline and death. However, the story is a little more complicated than that, as mistletoes are actually only semi-parasitic. Although they live on other trees and derive mineral nutrients and water from the host, they do photosynthesise and produce organic matter for themselves. They don't willingly kill the host tree, as this would signal their own death.

Trees overburdened with mistletoes are often in areas where the ecological balance has been upset, perhaps due to lower concentrations of native wildlife caused by human impact and altered fire regimes. Evidence suggests that wildlife like possums keep a natural check on mistletoe numbers. Encouraging native wildlife back into an area via bush regeneration and by providing next boxes may keep a balance on mistletoe numbers.

So are mistletoes friend or foe? All evidence points toward the fact that instead of being a pest, healthy concentrations of mistletoe will in fact help maintain biodiversity. It is an important resource for our native wildlife, one that cannot be overlooked.

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## Scientific name changes and the gender issue!

All botanical and scientific names are governed by two international conventions – namely the International Codes of Botanical and Zoological Nomenclature (e.g. see Braby 2000 p4)

When the Macleay's Swallowtail was first described by Leach in 1814 it was included in the genus *Papilio* (with all other Swallowtails) as *P. macleayanus,* the *us* ending denoting the male latinised genus *Papilio*. It appears as such in Waterhouse and Lyell (1914). When this species was moved to the new genus *Graphium* (which is neuter) the ending changed to "um". It appears as such in Common and Waterhouse 1972 and 1981. This change was made to follow the ICZN convention that the gender of a species must be the same as that of its original genus or the genus that it may subsequently be moved to.

However, in spite of this international convention, another local convention has recently dominated in the Lepidoptera community, that is to use the original author's spellings of the species' names irrespective of the gender of their genera (Braby 2000 p.xvi). Thus the name reverts to *Graphium macleayanus* in the two recent Braby books. Although the rationale of this is to avoid the confusion of name changes, it could be seen to be self-defeating!

The gender of the mistletoe genus *Amyema,* van Tieghem 1894, is in contention. Kew Botanic Gardens (London, U.K.) and the Queensland Herbarium (narrowly interpreting its Greek roots) consider it neuter and it appears as such in the current Queensland Plant Census. However, Brian Barlow, the reviser of the family Loranthaceae (ref. 1966) and author of mistletoes in the Flora of Australia (ref. 1984) considers it feminine as its author had intended (ref. 1992).

Paul Downey in his forthcoming publication on all the Australian mistletoes informs me that he will be using *Amyema* in the feminine gender and thus several species endings will become "a" in lieu of "um" e.g. *Amyema linophyllum* reverts to *A. linophylla* etc.

I have advised Glenn Leiper that my contribution to his new book will be using *Amyema* in the feminine and the B.O.I.C. hostplant booklet will, on revision, include it as such.

I have submitted a paper to a referred international botanical journal setting out my reasons why *Amyema* should be accepted as feminine. It will be interesting to see what, if any, reaction this has locally!

***John T. Moss***

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## AUSTRALIAN NATIVE BEES

## Aussie Bees in Your Garden

There are numerous species of Aussie bees (over 2,000) in competition with imported species (about 3) that are usually much larger and more aggressive, a bit like the business world. The largest native bees are the Giant Carpenter bees, they are 24mm yellow and black bees. The tiniest native bee is 2mm long and lives at Cape York. Mostly they will collect some pollen, nectar and plant resin to return to their hive or nest, some (leafcutter bees) may trim bits off the leaves of plants which they use to build their tubular, patterned nests. Australia has no native bumblebees.

Because many native bees are so small it is very difficult to monitor their lifestyles. The Australian Native Bee Research Centre (ANBRC) has catalogued documents dating back to the early 1900's. Some of the Aussie bees live in colonies in hollow trees and logs, others are solitary bees that may live in groups with nests in dirt mounds, brick walls, plant stems and in purpose built leaf nests under rocks and logs. Bees aren't the only insects that live in colonies or live in your garden, be sure you know the insect you are looking at before you interfere with its nest or try to catch it. Some insects are very aggressive and can cause serious injury.

### Some Common Aussie Bees

*Trigona carbonaria* – Small (4-5mm long), black colony bee, they live in a typical hive of queen, workers and drones. These are the most common Native Bee hives that can be kept in logs or boxed. The hive should be of a top and bottom half, each with internal dimensions about 200mm long x 150 mm wide x 120mm deep made of 20mm – 50mm clean timber. The distinguishing feature of their hive is the upward spiral of the brood comb.

*Austroplebeia australis* – Very similar to the *carbonaria* but with a brown colouring on the abdomen. *A. australis* and *T. carbonaria* are just two of approximately 12 species of social stingless native bees in Australia.

Blue Banded bee – Probably the most common of the garden bees, these are brown with blue/green metallic bands on the abdomen. Each queen builds her own individual nest tunnels in sandstone, mortar and clay. There may be a grouping of 50 or more females.  At evening time the males cluster together attaching themselves to plant stems using only their jaw.  The females may sting, the males can't.   Research is being done to use these bees for 'buzz' pollination of tomatoes instead of using imported bumblebees, which are already an environmental nuisance in Tasmania.

Leafcutter bees – The female builds a nest out of cut out bits of  leaf which may be constructed in crevices, under bark or rocks, or in the soil.  Some species are 10mm long with pale bands on the abdomen and orange hair on their tail.

Common Teddy Bear bee – A chunky orange-brown bee that nests in the soil.  About the same size as a honey bee but thicker.

A number of bees make their nest in hollowed out lantana, reeds and dead branches.

### Bee Attracting Plant Families

Myrtles :  These are very attractive to short tongued bees in particular. Myrtles include eucalypts, lilly pillies and heath myrtles

Mints and herbs, daisies and citrus are all good pollen producing plants

*Eucalyptus orelliana* (Cadagi) – A BIG ENEMY for *Trigona* and *Australis* bees. The bees collect resin from the seed pods as they open, the seeds stick to the bees and are carried back to the hive.  The seeds are distributed around the nest site and many strike.  Plant resin is mixed with wax to form cerumen which is the construction material for the hive.  Cadagi resin has a lower melting point than others, this may cause a "melt down" of the hive during hot periods.

### Insect Enemies

Two flies are serious threats to the social native bees, they are the *Syrphid* and *Phorid* flies.  The *Syrphid* fly mimics a wasp, the distinguishing feature is that the *Syrphid* fly has one antenna that is split near the end whereas wasps have two distinct antennae. The *Phorid* fly mimics the bee which allows it to get near the hive.  Both flies lay their eggs in the entrance or cracks in the hive, after the eggs hatch the maggots make their way into the hive and feast on a banquet of food including honey, wax, pollen and bee larvae.

Spiders, ants and wasps are also problems for the bees.  To aid in the defence and stability of the hives, bee keepers put gaffer tape around gaps in the hive.

### Other Threats

There are numerous other threats to the native bee population including clearing of land for development, bush fires, insecticides, plain ignorance (A school principal wanted two entrances to *T. carbonaria* hives plugged because they were annoying the children eating their lunches next to the hives).

**How to Help**

To help propagate the various species, man made nests and nest sites can be built eg. a hard dirt mould, grow hollow stemmed plants such as reeds and lantanas. A blue ice cream dish with a mud brick inside will attract Blue banded bees (use a biro to poke some holes in the drying mud), hard wood blocks with holes of various sizes drilled in them and placed on a shaded window sill. Plant more flower bearing native plants. If you have an existing native bee site on your property contact the Australian Native Bee Research Centre or a local contact.

The Australian Native Bee Research Centre has been researching and providing valuable information for a number of years, they have a number of publications including the Aussie Bee magazine. If you are interested in native bees please call Lee on 38991749 or Cec on 32824165, or view the web sites http://www.zeta.org.au/~anbrc/ and http://www.uq.net.au/~zzrzabel/ .

There is also an e-mail group at ANBees@yahoogroups.com. To join, follow the instructions on http://groups.yahoo.com/group/ANBees

Our appreciation goes to those tree loppers, developers and councils who are assisting in the rescue of the social (hive) native bees.

Thanks to Dr Anne & Les Dollin of the ANBRC

***Lee Byrnes***

## AQUATIC MACROINVERTEBRATES

### Queensland Aquatic Macroinvertebrates

Jon Marshall and Alisha Steward
Department of Natural Resources and Mines marshallj@nrm.qld.gov.au 3896 9156

#### Introduction

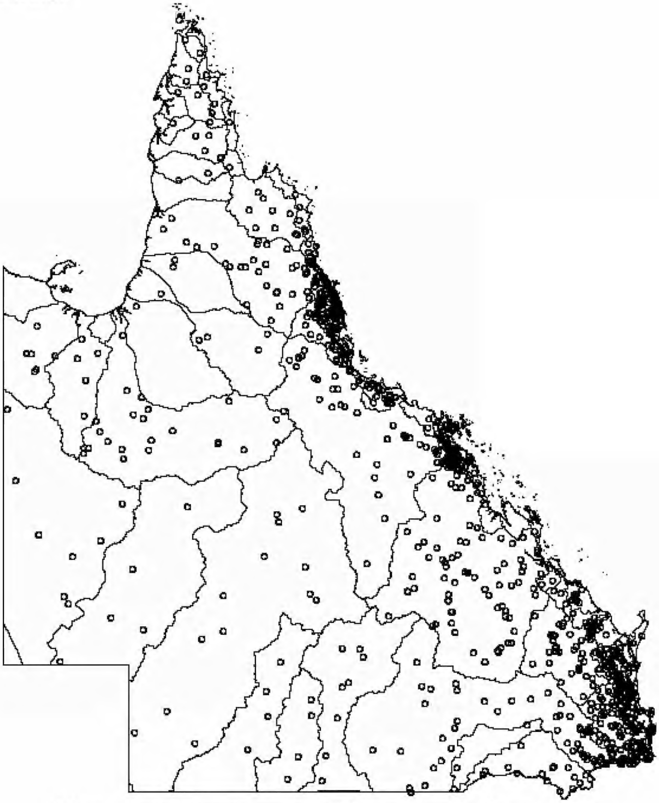
*Aquatic macroinvertebrates* is a term often used to describe the invertebrate fauna of rivers and streams. They are *macro* because they are big enough to be seen with the naked eye. By definition they are big enough to not pass through a net with a mesh of 0.25 mm, so many aren't really very big and most do require the use of a microscope to identify. The Queensland aquatic macroinvertebrate fauna is dominated by insects, both adult and larval or juvenile life stages, but there are also representatives from other groups such as crustacea, oligochaeta and mollusca.

The composition of macroinvertebrates living in a particular river can be used as a measure of the health of that river. Assessments are made by comparing what is present with what is expected to be present if the river was in good health. The Department of Natural Resources and Mines has an Aquatic Ecosystem Health Unit, which, amongst other tasks, uses macroinvertebrates identified to the family level in this way to assess the condition of Queensland waterways. Research here and elsewhere indicates this taxonomic level is suitable for broad-scale monitoring and assessment. Data have been collected from over 900 sites spread throughout the state since the mid 1990s from which 116 different macroinvertebrate taxa have been identified.

This huge body of data provides invaluable information concerning the ecology and distribution of Queensland's aquatic macroinvertebrates, which is otherwise quite poorly known. We are currently summarising this information and hope in future to gather this together into a publication. In this and subsequent newsletters we will provide some of this information for selected macroinvertebrates. If you have an interest in any particular family please let us know and we will endeavour to include it in the series of articles.

For this article we have chosen the family Gerridae from the order Hemiptera (true bugs). First though, we will explain the information presented. There is a **map** of Queensland with spots indicating where the macroinvertebrate of interest has been recorded in our samples. Of course the other side of the equation is where it hasn't been recorded. The map below identifies all the sites that have been sampled, so by comparing this map with the map showing where the macroinvertebrate has been found, you can also tell where it hasn't been found. The **Distribution Index** is a simple summary statistic of how common a macroinvertebrate is in Queensland rivers. Values range from 0 to 10 with 10 representing macroinvertebrates recorded from 91 to 100% of samples, 9 representing macroinvertebrates recorded from 81 to 90% of samples and so on. **SIGNAL Sensitivity Grade** indicates how sensitive the macroinvertebrate is to water pollution and ranges from 1 to 10 with larger numbers indicating greater sensitivity. **Functional Feeding Group** is a classification of macroinvertebrates according to how they feed and their food sources. Groups are: *grazers* which scrape algae from hard surfaces; *shredders* which break up leaf litter that has fallen into the water; *collectors* which gather and feed on smaller particles of leaf litter that have been broken up by physical and biological forces; *filterers* which sieve flowing water for fine organic particles; and predators which feed upon other animals. Note that aquatic plants (macrophytes) are not generally an important food source for aquatic macroinvertebrates. Some families are assigned to more than one group because individual species within the family can have different feeding modes, but usually this is not the case.

We are also presenting **preference profile graphs** of the macroinvertebrates for river flow velocity (in metres per second) and the particle size distribution of the river bed material. Bars above the horizontal line indicate a positive preference for a particular velocity or particle size and bars below signify an avoidance of those conditions. A bar with a value of zero indicates no preference at all. These indicate the type of river the family prefers.

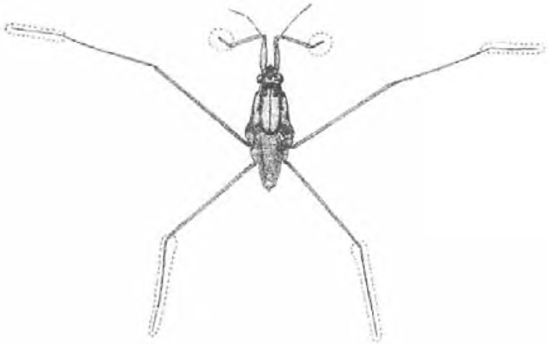


Map of all sites sampled with catchment boundaries

Queensland Aquatic Macroinvertebrates
Part 1, Family Gerridae

Jon Marshall and Alisha Steward
Department of Natural Resources and Mines
marshallj@nrm.qld.gov.au
3896 9156

Gerrids, also known as water striders or water skaters, are insects of the order Hemiptera (true bugs). They are predators that live and feed on the surface of still or slow-flowing water in rivers, lakes, and even large garden ponds. The hydrophobic (water repellant) hairs on their legs prevent them from breaking through the water's surface. Gerrids can be difficult to observe, as they move very quickly over the water's surface when disturbed. They often occur in groups for protection from predators, as well as for hunting together to capture large prey, much of which consists of terrestrial insects that have fallen into the water. Prey is captured with their shortened forelegs and pierced with their beak-like mouth parts. At least 36 species are known from Australian inland waters, with additional species occurring in marine environments.



Gerridae (reproduced from Anderson and Weir, 2004).

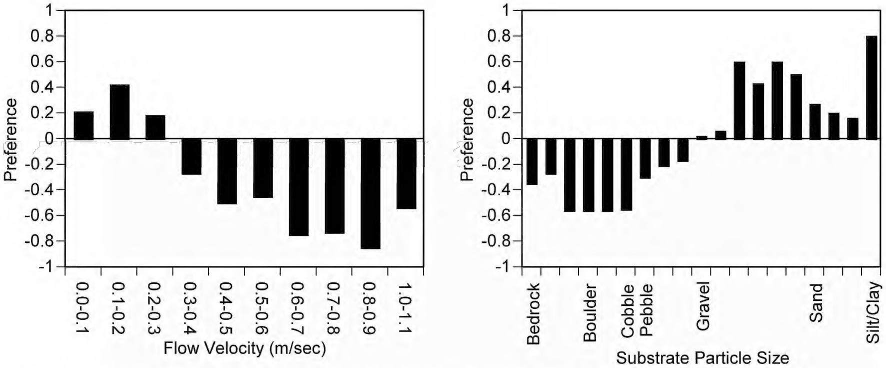
| Distribution Index | SIGNAL Sensitivity Grade | Functional Feeding Group |
|---|---|---|
| 6 | 4 | predator |

For further reading see:

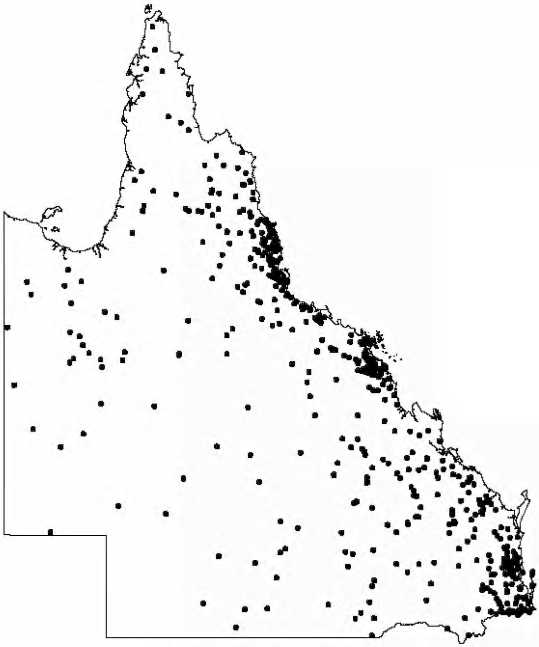
Andersen N.M. & T.A. Weir 2004. Australian Water Bugs: Their Biology and Identification (Hemiptera-Heteroptera, Gerromorpha & Nepomorpha). Entomonograph Volume 14. CSIRO Publishing, Victoria.

CSIRO 1991. The Insects of Australia: a Textbook for Students and Research Workers (2nd Edition), Volume 1. Melbourne University Press, Victoria.

Gooderham, J. & E. Tsyrlin 2002. The Waterbug Book: a Guide to the Freshwater Macroinvertebrates of Temperate Australia. CSIRO Publishing, Victoria.



Flow velocity (left) and substrate particle size (right) preference profiles for Gerridae in Queensland.



Known
Gerridae in

occurrence of
Queensland

rivers and streams.

# BOOK REVIEW

## "**The Complete Field Guide to Butterflies of Australia**" Michael F. Braby. CSIRO Publishing 2004"

From the PREFACE which is an accurate synopsis, Michael says
"This book aims to provide a reliable way of identifying the adult stage of all butterflies in Australia, particularly when in the field. It includes all species recorded from the Australian continent, its continental islands and outlying political territories. Of the 416 butterfly species currently recognized, 398 are known from the mainland, while a further 18 species are found only on the more distant islands administered by various Australian governments.

The Introduction gives a brief overview of adult structure, higher classification, distribution and habitats, and provides notes on the life cycle and behaviour of the six families which occur in Australia. This is followed by a short chapter on how to use this book and identify specimens.

The species descriptions, which form the main body of the book (pages 32-309), provide a brief synopsis of each species. The butterflies are presented in a systematic sequence, which reflects current views on their higher classification, although within each subfamily the order of species may not follow their strict systematic order. To help with identification, there are notes for each species under the headings: similar species, variation, adult behaviour, habitat, status, larval food plants and larval attendant ants (where relevant). These notes are supplemented with distribution maps and charts of adult flight times. In some cases, line drawings of critical structures needed for identification are included with the species photographs.

Most of the information for the species accounts has been extracted and condensed from *Butterflies of Australia: Their Identification, Biology and Distribution* published in 2000. However, the text includes a considerable amount of new information, based on papers published in both the scientific and popular literature between 1999 and 2003, as well as new unpublished information, based either on my own observations or on personal communications from colleagues. Where particular facts published in *Butterflies of Australia* have since proven to be in error or inaccurate, these have been corrected.

At the end of the book there is a checklist of the Australian butterfly fauna, a list of entomological contacts, a short glossary, a bibliography, and indexes of the common and scientific names for all Australian butterflies.

I hope this field guide will help butterfly collectors, commercial breeders, biology students and professional entomologists, as well as being of value to conservation biologist, naturalists, tourists from overseas and those with only a casual interest in entomology.  I trust it will also stimulate further interest in the natural history and conservation of these insects – especially in the conservation of their habitats – and find a place on the bookshelves of anyone who may simply wish to identify a butterfly in their garden.

Michael F. Braby, Canberra 2004"

I have a few further comments to make on this 350 page 145 x 215 mm soft covered guide, mostly as comparisons between this and his earlier, definitive, two-part "bible", published in 2000.  Two earlier "field guides", the converted Common and Waterhouse (1984) and Fisher (1995), were dated and difficult to use (the former) and inaccurate and poorly presented (the latter), effectively leaving a void which this new guide fills superbly.

The initial presentation is wonderful, with a stunning front cover photograph of the underside of arguably one of our most beautiful species, the Moonlight Jewel, *Hypochrysops delicia*.  This sets the scene for what follows, which is a book as technically accurate and artistically pleasing as any I have seen in recent years.  In general the book is a handy size (similar to the new Queensland Museum Wild Guide series) with adequate binding, but an extra covering of plastic would help to preserve it.

I am particularly impressed with the "How to use this book" chapter (which follows the obligatory introductory chapter on adult structure, higher classification, distribution & habitat and lifecycle & behaviour).  This adequately explains the set out of the following species synopses, in which common names have prominence, which is to be expected in a popular publication of this type.

In the species description section, on each two facing pages, a maximum of four (occasionally two) but usually three species are dealt with.  The left hand side contains a short description, notes on similar species, behaviour, habitat, status and larval food plants.  A colour-coded distribution map with a small chart of adult flight periods is included.

The whole of the right hand page is devoted to full colour illustrations of upper and undersides of each gender and where appropriate each subspecies plus seasonal and/or geographical forms.  Helpful gender signs have been added as well as a colour code spot for each variation.  Where relevant there are line drawings of critical structures (e.g. sex brands) for species differentiation.

If it were possible, the illustrations are improved on the 2000 treatise. Although they lack a scale bar (which in itself can be confusing) the relative size differences between compared species has been maintained. In many cases for clarity the overall size has been adjusted upwards but no butterflies appear significantly larger than life size. Some, especially in the Papilionidae, had to be reduced for reasons of space.

I notice that some of the mistakes in the 2000 publication have been corrected (e.g. the *Tisiphone abeona* subspecies distribution map). A few contentious issues remain, which is understandable, as a field guide is inappropriate for such dissertation. However, there remains some minor disagreement on current (morphological based) taxonomy (e.g. *Elodina* group) but consensus seems to have reigned in others (e.g. *Ornithoptera* group). There is no doubt that current gene sequencing techniques (with interesting early results) have set the stage for further splitting and lumping, let's hope with not too many surprises!

This book, which will soon appear in commercial bookstands, can be purchased directly from CSIRO Publishing, Vic. for $39.95 plus approx. $9 postage but may be cheaper if purchased from some clubs, societies or university bookshops. I highly recommend it for professional entomologists and amateurs alike.

***John Moss***

Ref.:

1. Butterflies of Australia : Their Identification, Biology and Distribution. M.F. Braby, CSIRO 2000
2. Butterflies of Australia – Field Edition. I.F.B. Common and D.F. Waterhouse. Angus and Robertson 1982
3. A Field Guide to Australian Butterflies. Robert Fisher, OAM., Surrey Beatty and Sons 1995

## BUG EYED

The grade 4 to 7 students at Pullenvale State School have recently been having some encounters of the invertebrate kind. Over the weekend of 13th and 14th November, they participated in a sponsored insect watching project called 'Bug Eyed'. This involved students gaining sponsorship per major insect group spotted. Students were provided with major insect group identification forms and did their insect spotting around their own homes.

The project was devised to help the children to observe and be inspired by the animals that are all around them. Proceeds raised are being divided between purchasing butterfly host plants for the school grounds, and making a donation to the Butterfly and Other Invertebrates Club.

Prior to the bug-spotting weekend, Helen Schwencke attended Parade at the school and spoke to the students about butterflies and their host plants. She donated some host plants to the school which were gratefully received and have formed the start of the school's butterfly host plant collection. ***Amanda Grimmett***

This was an innovative and creative project and I thank Amanda for involving our Club. By the way, Amanda organized the whole event from England where she's living at present. On behalf of the Club I returned to Pullenvale State School recently and was presented with a donation of $150, which was gratefully received. However, the greater value of the activity was having the children learn to be more observant about nature and learning to take an interest. The photo shows some of the Year 7 children working with the Preschoolers to plant some of the plants purchased with the funds raised.

***Helen Schwencke***

## VOLUNTEER REQUIRED

### Volunteer Please – Development of CD of the Club's newsletters

As one way to celebrate our 10th anniversary, the Club is seeking a volunteer with the necessary skills, or desire and ability to acquire the skills for creating a CD of all the Club's newsletters to date.

The task involves:
- converting the files into pdf format or some other appropriate format,
- including an index that has been updated,
- hyperlinking the index to the appropriate issue and article, and
- producing a master CD.

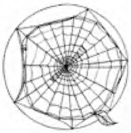
All of the Club's 35 newsletter have been scanned along with earlier monthly newsletters from 1994 - 1995

Other tasks could involve:
- producing a cover for the CD, and
- producing a stomp for the CD itself,

though these tasks can be done by others.

If you would like to help the Club with this task please contact me, on 07 3844 6677.
*Helen Schwencke*

## YOU ASKED



Hello I am a year 12 student studying biology at a Sydney High School. Currently I have an assignment concerning plant pathogens, and have decided to use the *Cephonodes kingii* that I caught for my brother as one of the pathogens.
I read your article http://www.connectqld.org.au/asp/index.asp?pgid=7148 and it indicated that the pupae take 3 weeks to emerge as adults. It has now been more like 10 weeks my 2 have been buried in the tank they are in and I was beginning to suspect they may be waiting for next spring. I'm positive that they are still alive as I removed one to photograph and it moved. I'm pretty confident that I identified them correctly being on Gardenias in the Sydney region and having all the markings characteristic of the species. I was wondering if you could help me with this dilemma and ease my worries.

A Daphne has passed on your enquiry to me and altho' I can't find any written information about *Cephanodes* overwintering as a pupa I think you are correct in your assumption about what is going on. Please keep notes and let us know when they emerge and perhaps write a short note about this for the BOIC newsletter as this sort of thing may be infrequently recorded. This note should include when they pupated, average room temperature where they are kept, what they had been feeding on, and of
course where you found them originally as well as the details of the final emergence. This will be of great interest. Let me know if you need any more help

Sincerely, ***Martyn Robinson***

## LETTERS

I received an interesting letter from Graeme Riddell of Victoria and would like to relate some of its content to you. D.

"……..I thoroughly enjoy receiving and reading our wonderful journal as there are so many interesting items and articles in it.

I live in Glen Waverley, an outer suburb about 20 km east of Melbourne and about 30 km. from our beautiful Dandenong Ranges. Also I am a member of the Field Naturalist Club in Blackburn which is about 20 km east of Melbourne and about 10-12 km north from where I live. At the Field Naturalist Club there is a section which I attend called the Terrestrial Invertebrate Group (T.I.G.), which is an entomology group. Our President is Dr. Allen Yew.

Unfortunately, most of the butterflies mentioned in our journal, don't appear so far south in Victoria, down Melbourne way, so I thoroughly appreciate and enjoy reading the many life cycles of the butterflies up in your warmer climates.

For a number of years now, I have been raising the Wanderer butterfly and have been able to release about 10-12 out of, say, 15 eggs, most of which were females and maybe one or two males, for over about a week to ten days. I often wonder why so many females appear than males over the years. Could it be, where I live so far south, it could be too cold for them and a genetic stricture takes place. Also once they all are released, I still have not seen any Wanderer butterfly eggs on the Swan plants I grow. Once again, could it be too far south for the Wanderers to breed. The time of year down here would be late spring to early summer.

Down south of Victoria, down Melbourne way, we had a beautiful moth called the Emperor Gum Moth. The picture of the moth can be seen on page 163 of Paul Horne and Denis Crawford's book "Backyard Insects" and Page 85 of Pat and Mike Coupar's book "Flying Colours". I have been trying to obtain cocoons or caterpillars for quite some time now and so far to no avail. This moth used to be so plentiful many decades ago but lately it is hard to obtain. I have many friends who are looking in the various parks, reserves and gardens for me and with me, but so far I only have 2 cocoons from last year. Hopefully on my next trips, I may be more successful.

Yours sincerely,
Graeme Riddell

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The following note was received from June Wimberley of Beerwah ,Qld. written on 16.8.04

" For the last couple of months I have had a Common Eggfly resting in my yard and patio area. It has stayed on the same leaf of a fern in a basket near my back shed for most of that time. For the last couple of weeks it has stayed on the same leaf of a hanging basket in the patio area. It does not appear to need nectar and I have read that the Common Eggfly can stay on wing all year round north of Brisbane.

I had to rig up a barrier to help keep it from being blown away in the strong wind we have had over the weekend and it is still here this morning. I have food plants for the Common Eggfly so I hope to see many more in the spring although with the drought as bad as it is it will be hard to say if we will see any."

Ed.: Speaking to June recently she commented that the butterfly was still "in residence" until at least early September.

If members have any comment on the issues raised in these two letters we would be glad to hear from you.

## World Wide Web Sites to Watch

http://www.ento.csiro.au/gallery/moths/index.php

Despite much research, the Australian moths are still very poorly known due to their massive diversity. This website is aimed at encouraging amateur collectors to become interested in the Australian moth fauna, and to foster their relationship with professional entomologists.

## YOUR CLUB'S MEMBERSHIP DIRECTORY

In February, 2002 your Club's organising committee decided to start encouraging members to network with each other in their local areas, and across their areas of interest. To this end we have now produced a membership directory. Only those members who have given us their permission have been included in the directory.

If you would like to be in a future issue of the directory please email Daphne at bowden@itconnect.net.au or phone: 07 3396 6334

## LIBRARY BOOKS FOR LOAN

A note on recent library book acquisitions and our new librarian.

Recently Janet Willoughby took on the task of keeper of the club's library books (which by the way are chronically underutilized). We thank both Terri Wolfe and Jean Hope, the former "custodians", for their good stewardship.

We were recently able to purchase quite cheaply some insect books from the culling of the Queensland Naturalist Club's library. Unfortunately we missed out on some of the better ones that went to higher bidders!

The following is a list of those, mostly dated but interesting, acquisitions.

Hardcovers -The Insects of Australia – 1970 CSIRO publication of 1029 pp.
Harry Frauca's book of Insects – Jacaranda Press 1968
A Book of Beetles – J. Winkler 1964
Softcovers - The Life of Insects – V.B. Wigglesworth 1968
British Butterflies – E.B. Ford 1975
Insect Ecology – E.G. Matthews 1976
Going Bush with Chinchilla Nats – Chinchilla Field Nat. Club Inc 1988
Planting a Native Garden – SGAP (Pine Rivers Branch) 1976

## AVAILABLE FROM BOIC

**Grow More Butterflies (Revised)** –
A selection of articles published in previous Newsletters $5.50 plus $1.10 postage

**Butterfly Gardening** –
A series of articles published in previous Newsletters $2.20 plus $1.10 postage

**Butterfly Host Plants of SE Qld. and Nth. NSW** –
A comprehensive list of host plants for this region $5.50 plus $1.10 postage

**A Butterfly Habitat Regeneration Project** – Details of a project undertaken by a school in Rockhampton $3.00 plus $1.10 postage

**Swallowtail Butterflies of S.E. Qld. –** A companion booklet to the Poster $4.50 plus $1.10 postage

Poster -**Lifecycles of the Swallowtail Butterflies of South East Queensland**, compiled by the BOIC
Cost: Non-members $10 plus $5 postage Members $6 plus $5 postage

The **Butterfly Alphabet Poster** which shows all the letters of the alphabet and numerals 1-9 appearing in the wings of butterflies and moths. This poster can be viewed by visiting www.butterflyalphabet.com
Cost: Non-members $25 plus $5 postage Members $23 plus $5 postage

The **Domino Poster** - A guide for field, school or garden with 250 Australian butterfly illustrations in colour
Cost: Non-members $10 plus $1.10 postage Members $8 plus $1.10 postage

**CD-ROM** – Brisbane and Nearby Areas, Insects and Spiders by Peter Chew. Available from Peter Chew at 3 Byzance Close, Eight Mile Plains Q. 4113 and also from the B.O.I.C.

**These items can be obtained from BOIC, PO Box 2113, Runcorn, 4113.**

## ADS AND EXCHANGES

**Limited Edition Prints of the rare and endangered Laced Fritillary** delightfully depicted amongst Arrowhead Violets available from Lois Hughes Ph. 3206 6229.

"**A Garden on the Wing – Attracting Birds and Butterflies to the Garden**" – Garry Sankowsky's excellent CD-ROM is now **$22** (was $44) plus postage. The address if you are mailing your order is Zodiac Publications, P.O. Box 210, Tolga, Qld. 4882 or visit www.rainforestmagic.com

## BACK ISSUES

**Back Issues of the Club Newsletter are available at a cost of $2 each plus postage (1-2 copies $1.10 - 3-6 copies $1.50).**

## OTHER GROUPS' ACTIVITIES

**Save Our Waterways Now (SOWN)** is an orgnisation of local community volunteers working to restore Enoggera, Fish and Ithaca Creeks. They meet on Friday mornings from 8am onwards. Contact Vera on 3300 1740 for details.

# BUTTERFLY AND OTHER INVERTEBRATES CLUB PROGRAMME

## Woodford Folk Festival, Butterfly Information Stall & Daily Walks

When: 27th December, 2004 to 1st January, 2005

What: Helen & Frank will hold a Butterfly information stall on the Butterfly Walk. This walkway leads up to the entrance to the folk festival main entrance from the ticket sales tent. This will be the second year of the Club's involvement with this event.

A **special feature** of this event will be a **Butterfly Walk starting 8am** on the mornings of the 28th, 29th, 30th & 31st December, starting from the General Store. This walk is outside the Festival itself.

Where: Woodford Folk Festival site, Woodrow Rd, Woodford (2003 UBD Brisbane Map 33, Ref C13)

Volunteers wanted: We are looking for volunteers to help staff the Club's stall. Volunteering for 5 hours per day makes you eligible for a free ticket to the festival for the number of days of volunteering. Please contact me asap so that the required arrangements can be made.

Contact: Helen 3844 6677, email: hschwenc@dovenetq.net.au

## Planning and Management Meeting

What: Our planning meetings are informative and interesting. As well as planning our activities we share lots of information. All members are welcome.

When: Wednesday, Feb 2nd, 6.30 – 9.00pm

Where: to be advised upon RSVP

Contact: Daphne 07 3396 6334 or email bowden@itconnect.net.au to RSVP or for more details

## Bioluminescence Excursion

When: Saturday, 22nd February, 2pm

Where: Meet at Forest of Dreams

What: Visit a Glow-worm cave ($7.95pp) admission, followed by a walk in local forests, BBQ evening meal, and bioluminescence spotlighting walk after dark. Stay for as long as you want. For those who want to, you can stay at Springbrook overnight and enjoy Sunday in a cool place.

Contact: Helen on 07 3844 6677 or email hschwenc@dovenetq.net.au to RSVP or for more details

## Visit to Bonni & John Reichelt's place and Nerang State Forest

When: Sunday, 20th March, 10am

Where: Meet at 158 Country Crs. Nerang. 6 cars can drive up and park near house, rest will have to park along street and walk up. Carpooling may be possible. (UBD 2003 Gold Coast Map 36 Ref G3)

What: In the morning, we will be insect-spotting and doing host plant ID on Bonni's 3.4 ha bush property, which backs on to the Nerang State Forest. After morning tea, we can continue the insect/plant search into the State Forest for as long as you like. Bonni will have coffee/tea/ cold drinks on patio. We can have lunch at the top of the ridge (about 45 min straight walk, but much longer if hunting for insects/plants) or when we get back to our property, depending on how long you wish to explore.

Bring: Lunch, a water bottle to carry, .a hand lens, hat, sunscreen and insect repellant may also be useful. Comfortable walking shoes needed. The walk in NSF is grade 1-2, with some steep slope.

Contact: Daphne 07 3396 6334 or email bowden@itconnect.net.au

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## Annual General Meeting & Eprapah Creek and Clay Gully Walk

When: Saturday, 9th April, 1.30pm for the AGM, with the Walk to start 2pm till 4.30pm

Where: Mungara Hut, Eprapah Environment Scout Training Centre, Cnr. Cleveland/Redland Bay Road, Victoria Point. (2003 Brisbane UBD, Map 226, Ref 2D)

What: See the new Butterfly Garden and Senses Trail as well as the Arboretum and Creek and Rainforest walks. If time permits we may move on to the nearby release site (Clay Gully) of the Swordgrass Brown butterfly (article next issue)

Bring: Insect repellant, hats, sunscreen, etc.

Contact: Helen 3844 6677 or email: hschwenc@dovenetq.net.au to RSVP or for more details

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**If you plan to attend one of the above events, please contact the person indicated in case, for some unforeseen circumstance, the event has had to be postponed or cancelled.**

## DISCLAIMER

The Newsletter seeks to be as scientifically accurate as possible but the views, opinions and observations expressed are those of the authors. The Newsletter is a platform for people to express their views and observations. These are not necessarily those of the BOIC. If inaccuracies have inadvertently occurred and are brought to our attention we will seek to correct them in future editions. The Editor reserves the right to refuse to print any matter which is unsuitable, inappropriate or objectionable and to make nomenclature changes as appropriate.

## ACKNOWLEDGMENTS

Producing this newsletter is done with to the efforts of:

- Those members who have sent in letters and articles
- Lois Hughes who provides illustrations including the cover
- Daphne Bowden who works on layout, production and distribution
- John Moss for scientific referencing and proof reading
- Helen Schwencke who developed the overall design

We would like to thank all these people for their contribution

## ARE YOU A MEMBER

Please check your mailing label for the date your membership is due for renewal. If your membership is due, please renew as soon as possible.

**Membership fees are $12.00 for Individuals/Oganisations and $17.00 for family membership.**

Would you please advise bowden@itconnect.net.au if you get/change an email address.

**Butterfly and Other Invertebrates Club Inc.**
PO Box 2113
RUNCORN Q. 4113

**Next Meeting: Bioluminescence Excursion - Saturday, 22nd February, 2pm**